



CITY OF CAMBRIDGE

Community Development Department

To: Planning Board

From: Community Development Department (CDD) Staff

Date: July 28, 2020

Re: **AHO Design Guidelines - Updated**

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The AHO Urban Design Guidelines were developed as part of the Affordable Housing Overlay Petition in 2019. The attached document is a slightly revised version of those guidelines that contains minor corrections, clarifications, improved images, and captions. Staff will be available to discuss at the August 4 hearing. A version highlighting revised text and graphics can be provided on request.

DESIGN GUIDELINES FOR AFFORDABLE HOUSING OVERLAY

28 JULY 2020

CITY OF CAMBRIDGE

COMMUNITY DEVELOPMENT DEPARTMENT

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INTRODUCTION

The affordable housing design guidelines have been prepared to complement the provisions of the Affordable Housing Zoning Overlay. They articulate the City's goals with regard to the form and character desirable for affordable housing developed under the AHO.

In several of the city's zoning districts, the AHO allows buildings in which all residential units are made permanently affordable to be built at a scale larger and taller than other buildings allowed by the district's base zoning. However, it is expected that affordable housing projects will be designed in a way that is compatible with their existing neighborhood contexts.

The guidelines in this document provide a shared framework to guide the discussion among the many parties that are involved with an affordable housing development. They are meant to help affordable housing developers prioritize design elements in the context of limited financial capacity as compared to market-rate residential development. They are not meant to be applied as individual requirements, but as a structured set of guiding principles and recommendations to inform the design process.

The guidelines are intended to promote affordable housing developments that benefit their residents, are good neighbors, and serve the quality of life in Cambridge.

1. PURPOSE

The Affordable Housing Zoning Overlay is a city-wide effort and its zoning requirements apply to all land use districts: residential, office, business and industrial. These design guidelines complement the zoning requirements with a focus on the built form of new affordable housing development in residential neighborhoods, and along business and commercial streets.

Residential neighborhoods and business and commercial streets vary in architectural character, form, scale, and density; and accordingly, the guidelines are intended to respond to and enhance the distinguishing characteristics of each.

The affordable housing design guidelines are meant to:

- 1.1 Create context-sensitive 100% affordable housing developments that enhance their neighborhoods and the public realm.
- 1.2 Create new affordable housing developments that incorporate urban design best practices and strive for design excellence, including integrating green infrastructure and green building design
- 1.3 Provide guidance for new construction, rehabilitation, and addition to existing buildings.
- 1.4 Provide affordable housing developers, property owners, the Planning Board, neighbors, City staff, and the Affordable Housing Trust with a framework to guide the advisory design review process for affordable housing development under the Affordable Housing Overlay.

2. OBJECTIVES AND PRINCIPLES

The following design objectives are intended to inform the design of Affordable Housing Overlay Projects and to guide the Planning Board's non-binding review and report. The goal of these guidelines is to promote new affordable housing buildings that reinforce the city's existing sense of place by reflecting and enhancing the patterns and textures of its public realm and built fabric, contribute to the city's streets and other public open spaces, are sensitive and compatible with the character of existing neighborhoods, and respect the privacy and quality of life of the residents of abutting properties.

Affordable Housing Developments will:

- 2.1 **Respond to their contexts, reinforcing and enhancing their existing shared and unique architectural and urban design character.** Begin the design and development process with an analysis of the architectural, landscape, and urban design qualities of the street as a component of the city's public realm. Affordable housing developments in established and mature neighborhoods with a fairly consistent architectural character and urban form are expected to reflect such qualities in their design. On streets with diverse architectural scales, massing, siting, and character, or where that character is evolving, more flexibility in built form may be appropriate.
- 2.2 **Contribute to Cambridge as a visually rich, beautiful, and safe pedestrian environment through their architectural, site, and landscape design.** Design front yards to reinforce the street as civic space that connects individual buildings as members of a community. Arrange site features such as driveways, vehicular and bicycle parking areas, service areas, and mechanical and electrical systems to minimally impact the public realm and neighbors.

- 2.3 Provide a sense of comfort by making new buildings and additions inviting and compatible with their neighbors.** Regardless of style, contribute to a sense of a rich architectural community by the arrangement, rhythm, and scale of architectural elements including structural bays, the location and depth of windows, projecting bay windows, entrances, roof shapes, dormers, and the detailed assemblage of materials. Configure building massing and facades, including the location of windows, with sensitivity to the privacy of existing residential neighbors and their need for light and air.
- 2.4 Use construction materials that are compatible in scale, texture, and color with those of the surrounding context.**
- 2.5 Incorporate architectural details and subtle embellishments to relate to human dimensions and scale.** Incorporate elements such as string courses, lintels, sills, and trim to create a sense of scale and compatibility with neighboring buildings.
- 2.6 Organize building facades into base, middle, and top.** Reflect the varied scales of the urban environment – those of the pedestrian, the dwelling unit, the building as a whole, and its street – in massing and facade design. Contribute detail and interest to the pedestrian streetscape at the ground floor level, frame the street as a coherent public space by the design of middle floors, and provide elements such as sloped roofs, gables, dormers, and setbacks on top floors to engage the sky and create visually engaging rooflines.

- 2.7 **Incorporate common spaces to foster a sense of community.** Depending on the size of the development, these may include sheltered entry porches, lobbies, meeting rooms, courtyards, and roof decks.
- 2.8 **Harmonize new buildings and additions in appearance and scale with historically significant buildings.** Incorporate architectural embellishments such as sloped roofs or upper floor stepbacks to mitigate bulk and height.
- 2.9 **Contribute to Cambridge as an energy efficient and resilient community.** Design developments with the causes and effects of climate change in mind, including greenhouse gas emissions, flooding, and extreme heat.

3. ADDRESSING NEIGHBORHOOD CONTEXT

Respond to the urban, architectural, and landscape character of the neighborhoods surrounding new affordable housing projects.

The design of new affordable housing developments will begin with an analysis of the existing immediate contexts and the broader character of their neighborhoods, taking into consideration parameters including:

- The characteristics of the public realm
- The street and pedestrian network
- The surrounding land uses and building types
- Landscape design
- Building siting
- Building scale and massing
- Architectural language
- Architectural details
- The colors and textures of building materials
- Other aspects of form that contribute to neighborhood character

For projects sited in evolving areas, the analysis will demonstrate an understanding of the City's goals for the district's urban form.

SITE DESIGN

Thoughtful building placement, orientation, setbacks, green open space, landscaping, circulation, pedestrian access, and parking layout are critical elements to creating a desirable setting for housing projects, to creating a good fit with existing nearby buildings, and to contributing to the City's public realm.

- 1. Response to Context**
- 2. Open Space and Landscape Design**
- 3. Circulation**
- 4. Parking**
- 5. Utilities and Services**
- 6. Outdoor Lighting**
- 7. Public Art**

1. RESPONSE TO CONTEXT

OBJECTIVE

Design project site layouts to harmonize with the neighborhood context, including the surrounding urban patterns of streets and blocks, building setbacks, travel paths, and open spaces. In existing neighborhoods with established patterns of development, responsive and context-sensitive site design will help preserve the character of the built environment. In evolving areas of the city, forward looking new developments should help achieve the city's goals for urban character.

GUIDELINES

- 1.1** Locate and orient new buildings so that their front yard setbacks relate to those of neighboring and adjacent buildings to the maximum extent possible.
- 1.2** Locate open space in relation to adjacent yards, residential units, and public spaces that would benefit from natural light and views.
- 1.3** Where site dimensions allow, consider creating entry courtyards, internal courtyards, and semi-enclosed courtyards open to the block interior.
- 1.4** Locate pedestrian and bicycle paths, vehicular routes; parking areas; and utility/service areas in response to neighboring buildings.
- 1.5** In large developments, consider creating through-block pedestrian or vehicular connections.
- 1.6** Place buildings and design their landscapes to minimize impacts on nearby existing buildings, to respect the privacy of neighbors, and to maintain their access to natural light and air.
- 1.7** In siting new buildings, consider public views to adjacent landmark buildings, public open spaces, public art areas, or other features of significant visual interest.
- 1.8** In existing well-developed areas, where urban patterns are relatively uniform and stable, match the prevailing pattern of front yard setbacks, building orientations, and the location of entrances as much as possible. Variation may be desirable, however, at certain locations, such as the corners of blocks.
- 1.9** In areas where the patterns of development are stable but more diverse, site buildings in relation to neighbors with the aim of creating a more coherent streetscape while meeting other citywide objectives articulated in these guidelines.
- 1.10** In evolving areas of the city, locate new buildings and site elements to support the planned patterns of development.
- 1.11** In commercial districts, site new buildings to maintain the continuity of existing retail frontage while allowing for comfortable sidewalk width and creating opportunities for activation such as outdoor seating.
- 1.12** Locate and design parking, trash storage, and mechanical equipment to minimize their impacts on abutting residences and the public.

OPEN SPACE - CONNECTING BUILDINGS TO THE SURROUNDING CONTEXT



2. OPEN SPACE AND LANDSCAPE DESIGN

OBJECTIVE

Design open space to enhance the lives of residents and the broader community by offering aesthetic and environmental benefits through the inclusion of vegetation, trees, elements to provide shade. Offer useful amenities to residents, provide opportunities to minimize the impact of the new development neighbors' privacy and quality of life, and contribute to the beauty of the city's streets, sidewalks, and open space.

GUIDELINES

- 2.1** Provide a range of types of open spaces as appropriate to the site, context, and building form: yards, entry courtyards, interior courtyards, porches, loggias, balconies, roof terraces, and upper-level decks.
- 2.2** Provide opportunities for enjoyment of nature, such as gathering places and play spaces for residents.
- 2.3** Provide seating to foster social connection. Consider locations at building entrances, courtyards, and along paths connecting different areas of the site.

OPEN SPACES: ACCOMMODATING DIVERSE USES



- 2.4 Consider summer shading and winter solar access.
- 2.5 Design open spaces to contribute positively to the public realm, maximizing vegetation—particularly canopy trees—to shade and enrich streets and other public open spaces.
- 2.6 In dense residential neighborhoods, design front yards to frame the street and sidewalk as civic spaces and to enhance the privacy of building interiors. Consider organizing front yard landscape elements—low walls, low planting or hedges, fences, trees, ground cover, foundation planting, etc.—as a series of layers parallel to

the sidewalk to frame civic space and delineate thresholds of privacy as one moves from the sidewalk to the building entrance.

- 2.7 Where possible in dense residential neighborhoods and on corridors, provide landscaped forecourts and inner courtyards to create transitional space between the public street and the building lobby, to provide light and air to unit interiors, and to enrich the site with plantings.

COURTYARDS: INTEGRAL COMPONENTS OF THE URBAN PATTERN



COURTYARDS: CELEBRATING THE BUILDING ENTRANCE

FRONT YARDS: CONTRIBUTING TO THE PUBLIC REALM



- 2.8 Consider the location, dimension, and orientation of open spaces to best promote healthy trees and other vegetation.
- 2.9 Minimize the urban heat island effect by preserving existing mature canopy trees wherever possible and by planting new ones to shade buildings, open spaces, and paved surfaces.

- 2.10 Follow the recommendations of the Department of Public Works and the [City's Urban Forest Master Plan](#) for species, planting standards, and care.

COURTYARDS - PLACES OF CONNECTION



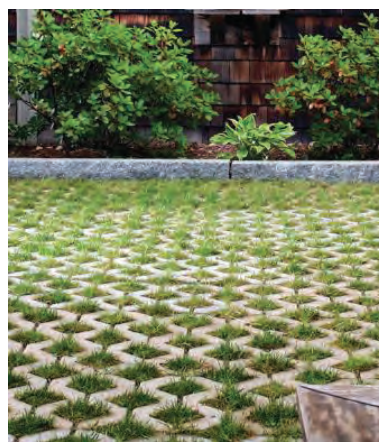
2.11 Select species for low plantings and ground cover that are appropriate for urban conditions.

2.12 Minimize paved surfaces. Use permeable surfaces wherever possible for pedestrian pathways, parking areas, and other paved outdoor spaces.

2.13 Use landscaping to screen surface parking and vehicular driveways from residential units and open spaces on and adjoining the site.

2.14 Screen loading and trash areas, meters, mechanical units, and utility equipment with plantings or other appropriate landscape elements.

SHADE, PERMEABLE SURFACES, AND SCREENING OF SERVICES AND UTILITIES



3. CIRCULATION

OBJECTIVE

Promote non-motorized mobility by prioritizing pedestrian-friendly and bike-accessible site design.

GUIDELINES

- 3.1** Create direct, functional, and beautiful paths for pedestrians and bicycles from the public sidewalk to building entrances. Pedestrian access to the building and site should be clearly articulated and accessible to people of all levels of ability, and should take precedence over other mobility modes.
- 3.2** For large buildings, incorporate multiple entrances wherever possible.
- 3.3** Locate building entrances wherever possible to address public streets.
- 3.4** Consider elevating residential first floors above sidewalk level to enhance privacy, consistent with accessibility needs and requirements.
- 3.5** On corner lots with non-residential street level activities such as retail, consider locating entrances to ground floor functions at building corners.
- 3.6** Establish pedestrian path widths and select their materials in accord with their uses and locations on the site.
- 3.7** Provide bicycle access to the site and building that is clearly legible, convenient, and reasonably direct. Locate short-term bicycle parking for visitors where it is visible and convenient to main building entrances. Locate long-term bicycle parking for residents in secure and screened locations.
- 3.8** Create vehicular access and circulation routes that are distinct from paths of pedestrian travel.
- 3.9** Minimize the number and widths of curb cuts and driveways.
- 3.10** Locate curb cuts on secondary streets where possible.

PRIORITIZING THE PEDESTRIAN ENVIRONMENT



CELEBRATING BUILDING ENTRANCES



4. PARKING

OBJECTIVE

Minimize the impact of parking and driveways on residents, neighbors, and the general public.

GUIDELINES

- 4.1 Where possible, separate ground floor structured parking and/or bicycle storage from the street with residential units, common areas, retail, or other populated ground floor uses .
- 4.2 Develop the layout of parking and driveways to avoid conflicts with pedestrian and bicycle movement.

- 4.3 Minimize the site area dedicated to driveways and parking and maximize its distance from neighboring properties.
- 4.4 Use green walls, hedges, art work, metal stencils, fences, louvers, sun shading elements, or other means to visually screen parked cars.
- 4.5 Shade parking lots with canopy trees or by other means where possible.
- 4.6 Utilize permeable pavement where possible.

SHADING DRIVEWAYS AND PARKING AREAS AND SCREENING THEM FROM VIEW



5. UTILITIES AND SERVICES

OBJECTIVE

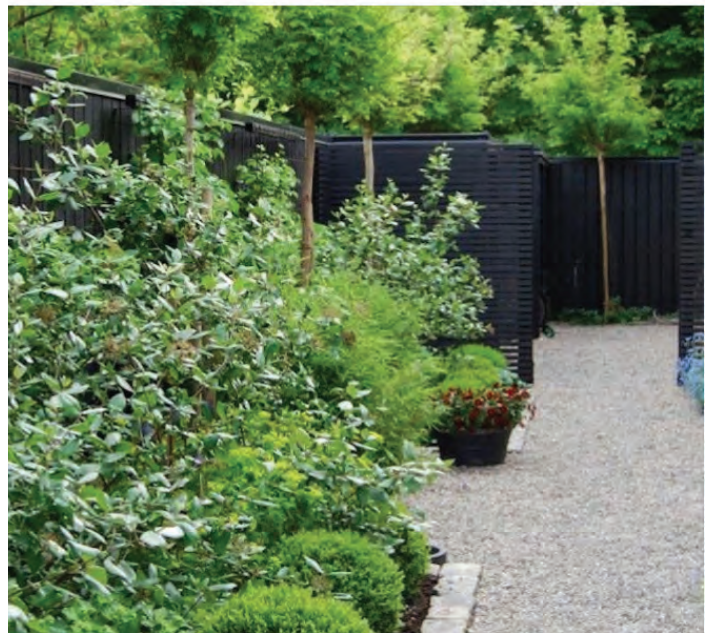
Minimize the visual, acoustical, and environmental impacts of essential utilities and services on neighbors and on the public realm.

GUIDELINES

- 5.1** Locate utility functions such as gas, electric, and water meters, transformers, switchgear, and fire safety equipment where they will be least visible from the street. Where possible, conceal them within the building or in side or rear yard setbacks. They should be planned for early in the design process to minimize their impacts.
- 5.2** Locate mechanical elements such as HVAC units, condensing units, ventilation outlets, mechanical exhausts, louvers, and similar objects to minimize their visibility from the public realm and from neighboring sites and buildings. Screen these elements with plantings, fences or other materials that complement the site design and the building's architecture.

- 5.3** Avoid locating air conditioning condensing units on the ground. They should be located on roofs wherever possible.
- 5.4** Locate roof mounted air conditioning equipment, and mechanical penthouses away from roof edges and/or provide parapets with adequate height to screen them from adjacent properties and public areas.
- 5.5** Reduce the noise impact of rooftop mechanical equipment with sound damping materials and screens and proper acoustic and sound isolation methods.
- 5.6** Screen trash and recycling areas with landscaping and/or fencing and ensure that noise and odor-generating functions are fully enclosed.

SCREENING OF TRASH AND ELECTRICAL EQUIPMENT AS AN INTEGRAL COMPONENT OF LANDSCAPE DESIGN



6. OUTDOOR LIGHTING

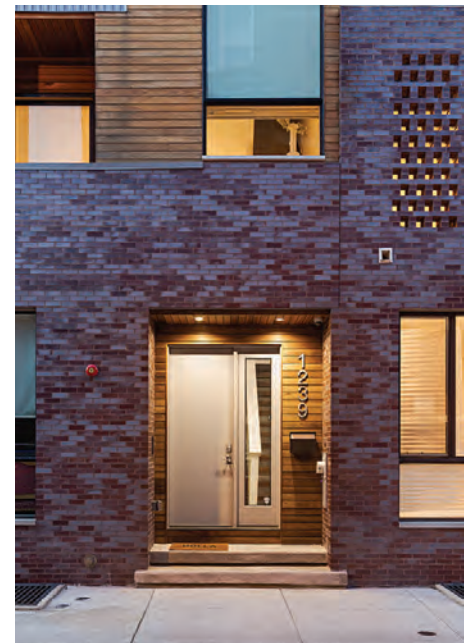
OBJECTIVE

Provide lighting for safety and functionality while minimizing energy use, light pollution, and other negative impacts on neighbors, the public realm, and the larger environment,

GUIDELINES

- 6.1** Use lighting only for safety and functional purposes such as providing wayfinding along access/egress routes, allowing open spaces to be usable in the evening, illuminating signage, or subtly accentuating key architectural elements of a building.
- 6.2** Outdoor lighting should provide a level of safety for residents while avoiding glare, light pollution, and light trespass onto adjacent properties.
- 6.3** Provide lighting that is fully shielded, downlit, has a warm color temperature, and is at or below typical neighborhood light levels.
- 6.4** To further reduce light pollution, consider the provisions of Cambridge's draft Outdoor Lighting Ordinance.
- 6.5** Select lighting fixtures that minimize energy consumption.
- 6.6** Employ timers, automatic dimming, motion sensors or other mechanisms to avoid excessive lighting, including in tuck-under parking.
- 6.7** Consider using photovoltaic panels to power lighting.

LIGHTING: DESIGNED AND LOCATED TO ADDRESS FUNCTIONALITY, SAFETY, AND AESTHETICS



7. PUBLIC ART

OBJECTIVE

Enrich the visual environment and strengthen the sense of place by incorporating art.

GUIDELINES

7.1 Incorporate public art as an integral component of the development's architectural and landscape design.

7.2 Where possible, integrate arts related uses such as artists' galleries, arts displays, or artists studios on the ground level of affordable housing developments that are located on business and commercial streets.

PUBLIC ART



BUILDING DESIGN

Design buildings to contribute to the neighborhood context. Whether in areas of the city that are in transition or in older established neighborhoods, affordable housing development should strive for design excellence and be sensitive to the character of the neighborhood. Compatible building massing, form, scale, color, materials, and architectural details are critical in creating buildings that fit within existing neighborhoods.

- 1. Massing**
- 2. Facades**
- 3. Architectural Details, Materials, Color, and Finishes**
- 4. Building Interiors**

1. MASSING

OBJECTIVE

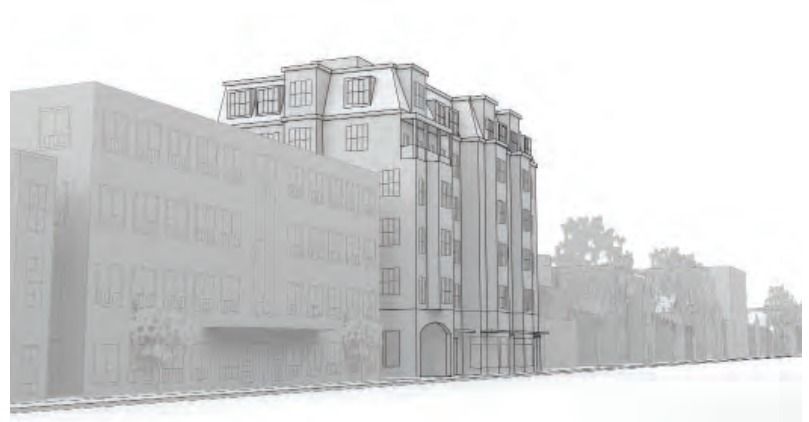
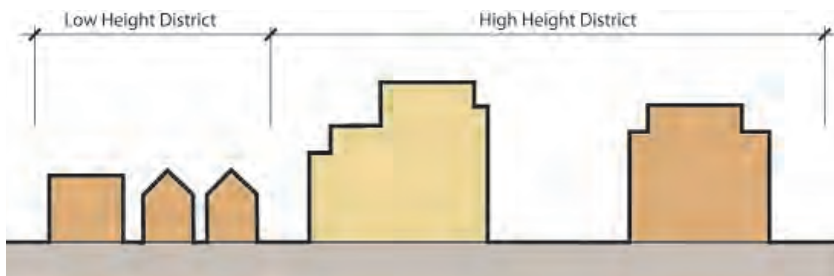
Configure building massing for compatibility with the prevailing or desired pattern of neighboring buildings and open spaces. In established neighborhoods, relate to the existing pattern of streets and other open spaces, and prioritize compatibility with existing buildings. In evolving areas, configure new developments to help realize the City's vision for urban form.

GUIDELINES

1.1 Relate new building height, massing, scale, and form to that of existing adjacent buildings.

- 1.2** Incorporate setbacks to relate to the heights of adjoining buildings and to the scale of the street; and to provide a transition between the height of taller buildings and lower surrounding buildings.
- 1.3** Where a project's site adjoins a district with a different height and scale, as where a site along a commercial corridor adjoins a lower height residential district, adjust building massing to relate to those heights and scales.
- 1.4** Where possible, divide large developments into separate buildings to reduce their scale.

RELATING TO THE SCALE OF NEIGHBORING BUILDINGS



1.5 Articulate the facades of large buildings into smaller components by means such as vertical recesses or projections from the primary plane of the street facade.

1.6 Reduce the visual bulk of taller buildings by using stepbacks, or mansard, gambrel, hipped, or gable roof profiles to enclose habitable upper stories.

1.7 In high density areas, such as commercial corridors, frame streets and squares with streetwall facades.

1.8 In smaller scaled residential areas, articulate the mass of large buildings to create a sense of scale compatible with smaller scaled neighbors.

BREAKING DOWN THE SCALE OF LARGE BUILDINGS



REDUCING THE BULK OF UPPER FLOORS



1. MASSING (CONTINUED)

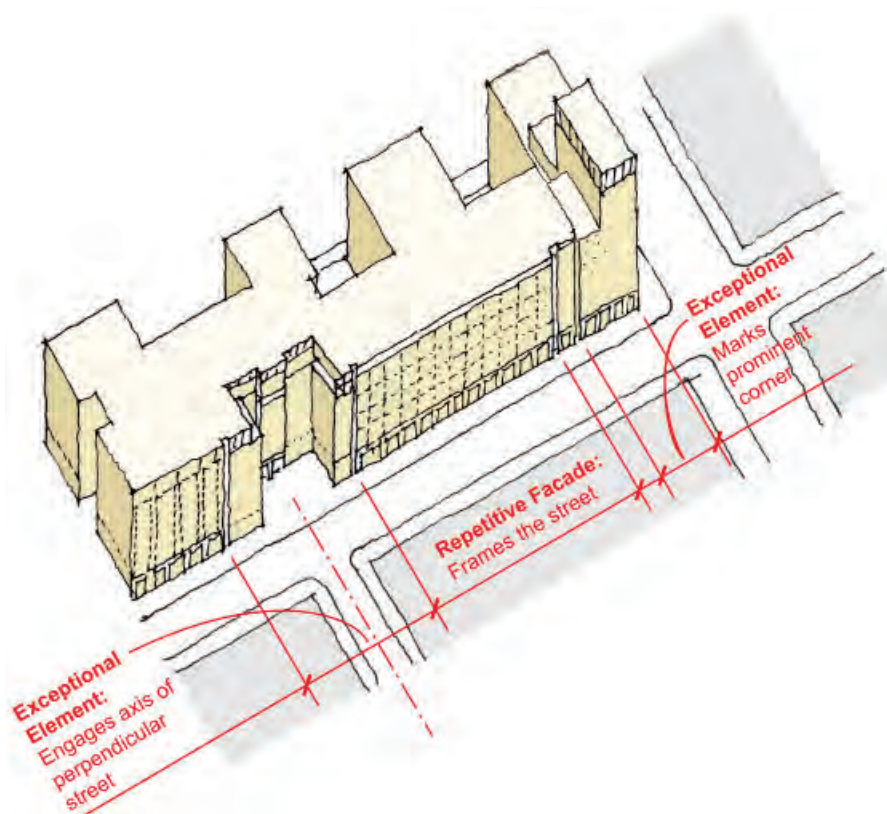
1.9 Reinforce the existing or planned pattern of streets and blocks and minimize impacts on neighbors.

1.10 Adjust building configuration and massing to maximize access to sunlight, air, and sky views from neighboring buildings and sites, and to maintain privacy.

1.11 Where possible, provide courtyard spaces at building fronts or sides to reflect the character of preexisting development and to divide long frontages into smaller scaled facades.

1.12 Where appropriate, reinforce important street corners or termini of view corridors with special elements.

RESPONDING TO THE CONFIGURATION OF THE PUBLIC REALM



RESPONDING TO SIGNIFICANT CORNERS

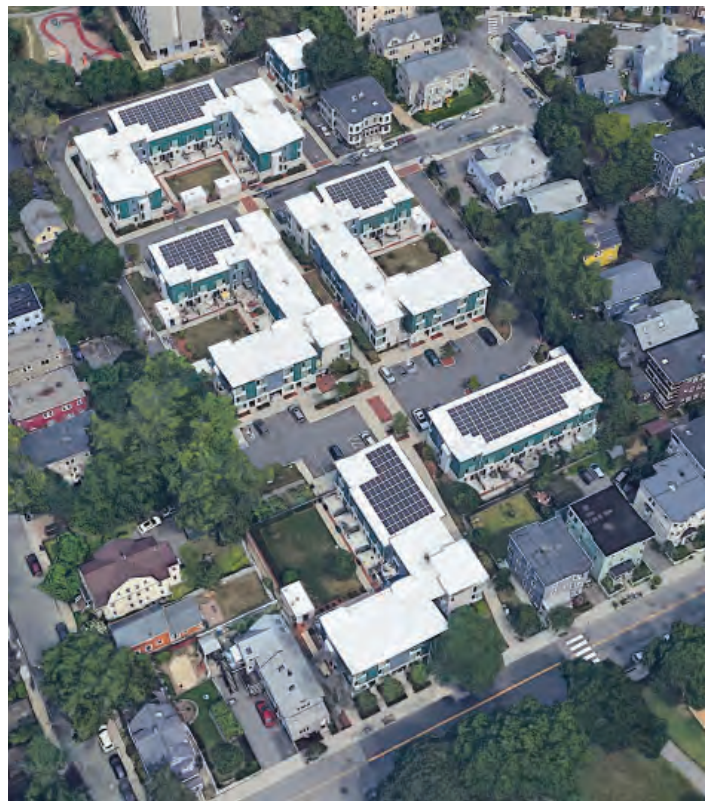
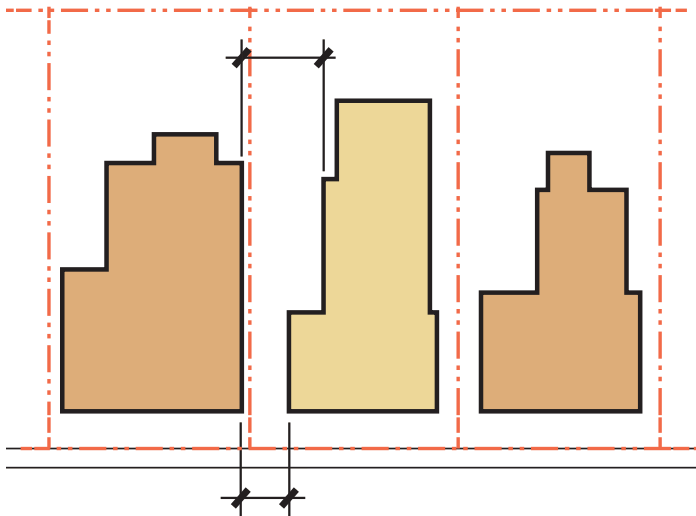


1. MASSING (CONTINUED)

- 1.13 Consider both symmetrical and asymmetrical arrangements of building massing to best relate new buildings to their existing neighbors.
- 1.14 For buildings fronting onto more than one street, such as buildings on corner lots, respond to the relative significance of the streets with orientation and massing strategies that reinforce their distinct characters. If possible, incorporate multiple building entries.

- 1.15 Where an existing neighboring residential building is located very close to the lot line, consider adjusting the new building's footprint to create a wider side yard than the minimum required.
- 1.16 Where new buildings are constructed in the rear yards of existing buildings, or on large lots with large setbacks, adjust their massing to reduce impacts on neighboring buildings and yards by careful siting, articulate massing, and by reducing the visual bulk of top floors.

RESPONDING TO NEIGHBORING BUILDINGS AND PRIVATE OPEN SPACES



2. FACADES

OBJECTIVES

Design building facades to enhance and enliven the public realm. In established areas, emphasize compatibility and reinforce the sense of place. In evolving residential and commercial districts of the city, contribute to the transformation of urban form by setting precedents for design excellence.

Where appropriate, incorporate ground level retail spaces and common areas to foster a lively enliven the urban environment.

Provide daylight to interior spaces, avoid excessive energy use, and protect the privacy of the residents of neighboring buildings.

Design facades to relate to the residential

scales and patterns of Cambridge's diverse and historic neighborhoods.

Design street facades to offer a sense of civic presence and human scale, incorporating architectural details to provide visual interest as appropriate to their role in defining public space.

GUIDELINES

- 2.1 Consider Cambridge's architectural history, heritage, culture and regional significance as well as the established pattern of residential neighborhoods and conservation districts.
- 2.2 Relate to architectural styles of the immediate neighborhood context, and the street's urban qualities.

FACADE DESIGN: RESPONDING TO CONTEXT



2. FACADES (CONTINUED)

2.3 Provide architectural elements such as balconies, bay windows, dormers, roof gardens, and terraces where appropriate.

2.4 Enrich facades with changes in plane, projecting bay windows, balconies, and articulated entrances, sun shades, and high quality materials.

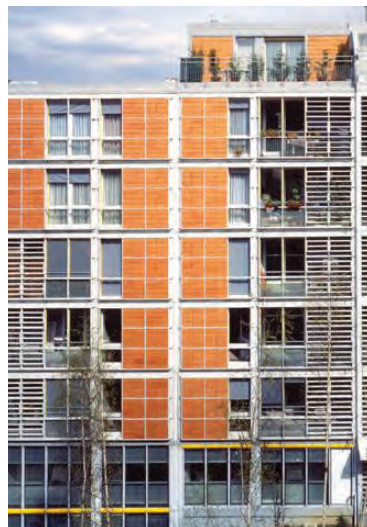
2.5 Relate to the window-to-wall ratios and the proportion and rhythm of doors and windows prevalent in the district.

2.6 Relate to the scale of materials and joint patterns prevalent in the surrounding neighborhood.

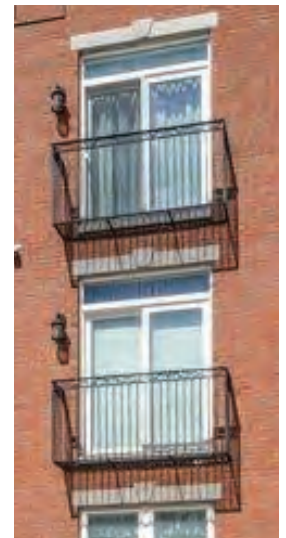
2.7 Enrich and refine facades with details such as lintels, sills, and other window trim, railings, string courses, cornices, and rake and eave details.

2.8 Provide shelter and shade at building entrances.

ENRICHING FACADES WITH BAY WINDOWS, CHANGES IN PLANE AND MATERIALS



BALCONIES AND PORCHES



2. FACADES (CONTINUED)

2.9 Where buildings present long facades to the street, give the facade visual interest and create an intermediate sense of scale by incorporating elements such as recesses, projections, balconies, bay windows, porticoes, columns, pilasters, piers, or expressed structural bays.

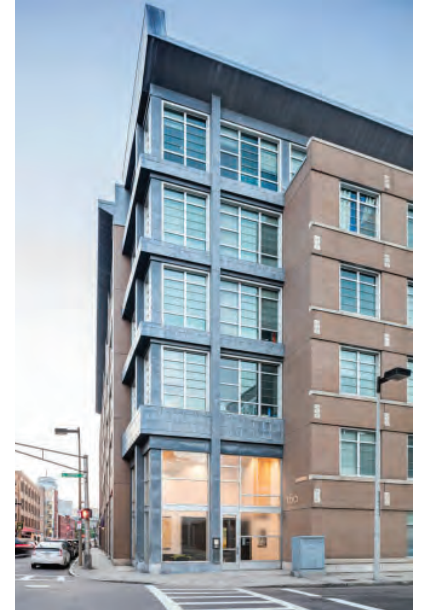
2.10 Consider providing emphasis at the corners of blocks by facade treatment and by providing functional entries to ground floor retail spaces.

2.11 Avoid incorporating extravagant or exaggerated building elements or features such as out-of-scale cornices on building parapets.

MODULATING LONG FACADES TO ENRICH THE SENSE OF SCALE



EMPHASIZING BUILDING CORNERS



2. FACADES (CONTINUED)

2.12 For buildings on lots with significant side and rear setbacks, consider articulating all four sides of the building.

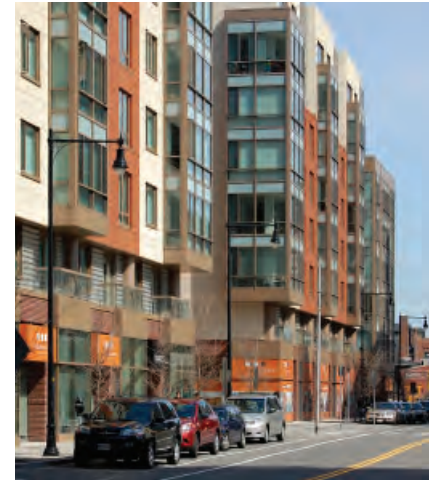
2.13 Use building massing, form, color, and materials, and architectural details to differentiate the building's base, middle, and upper level facades; and add special design emphasis on the ground floor facade.

2.14 Enrich public streets with identifiable and functional building entrances. Where possible on residential streets, provide multiple entrances to individual first-floor units.

2.15 For large buildings on business and commercial streets, emphasize the distinct character of the ground floor facade, particularly where retail space or community spaces are provided.

2.16 Where ground floors accommodate retail space, common spaces, or community spaces, maximize views of interior spaces on public streets by using clear glass in windows and storefronts.

TRIPARTITE FACADE ORGANIZATION - BASE, MIDDLE, AND TOP



ARTICULATED SIDE AND REAR FACADES OF BUILDING ON LARGE LOT



2. FACADES (CONTINUED)

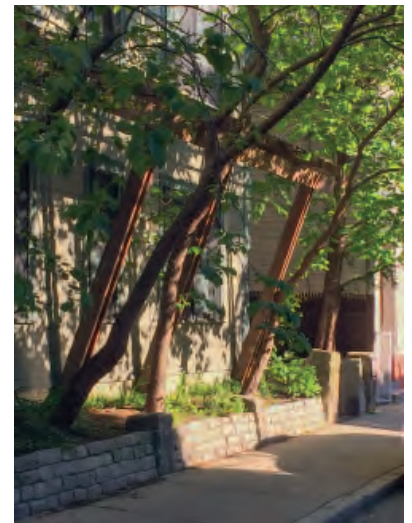
2.17 Enhance building entrances and spaces around them with features such as stoops, porches, recesses, canopies, awnings, low walls, arcades, landscaping, and seating areas.

2.18 On business and commercial corridors, clearly differentiate ground floor facades from those of upper floors. Provide ceiling heights and facades to accommodate retail or other active uses.

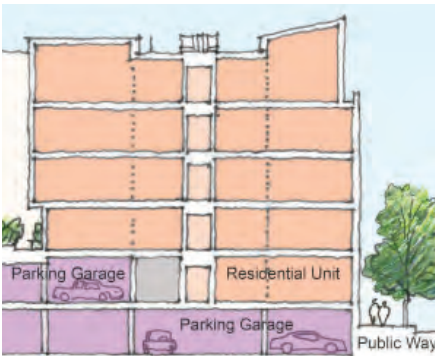
2.19 Wherever possible, screen parking with programmed spaces to enliven the street facades.

2.20 Where parking spaces immediately behind the ground floor street facade or facing neighboring properties, screen the parking with architectural elements that provide depth and visual interest, including decorative louvers, green wall or other decorative treatment including art work, grilles or louvers. Avoid using metal wire mesh screening that does not provide depth to the wall.

GROUND FLOOR FACADES - RETAIL AND RESIDENTIAL



GROUND FLOOR FACADES - SCREENING PARKING AND SERVICE FUNCTIONS



2. FACADES (CONTINUED)

2.21 Avoid blank walls on ground floor facades. Where spaces such as utility rooms, fire control centers, etc. require windowless walls, other means of creating visual interest should be provided, including changes in plane, materials, details, and provision for planting.

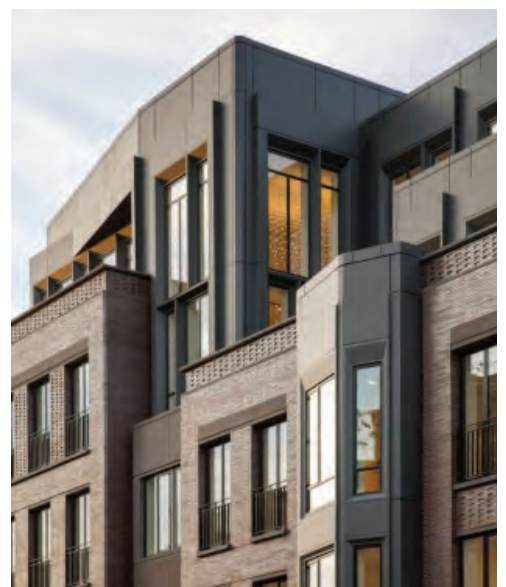
2.22 Give special consideration to the design of top floor facades, particularly in residential neighborhoods, where buildings in Cambridge

often have intricate massing, roof lines, or parapet walls.

2.23 Rooftop terraces and gardens can add visual interest to the tops of buildings and provide needed open space for residents.

2.24 Design roofs and top floors as natural extensions of the building massing.

BUILDING TOP FLOORS - DORMERS, SETBACKS, TERRACES, AND BALCONIES



2. FACADES (CONTINUED)

2.24 Size and locate fenestration to balance urban design goals and architectural qualities such as transparency and a pedestrian-friendly appearance with building energy performance and neighbors' privacy.

2.25 Visually enrich glazed areas with carefully considered mullion and muntin patterns and profiles, operable windows, window trim, and sun-shading devices.

WINDOW-TO-WALL RATIOS - BALANCING VISUAL TRANSPARENCY AND ENERGY EFFICIENCY



Residential building with active non-residential uses in first floor



Residential building with first-floor dwelling units

FENESTRATION - ENRICHING THE FACADE WITH MULLION PATTERNS AND THE ARRANGEMENT OF OPENINGS



2. FACADES (CONTINUED)

2.26 Use best practices in restoration and maintaining historic structures. Consultation with the Cambridge Historical Commission is recommended, especially for developments in Historic and Neighborhood Conservation Districts.

2.27 In renovating or adding to an existing architecturally or historically significant building, or where original materials or components need to be replaced, use traditional building elements with the same architectural features, material

quality and craftsmanship. If not feasible, substitute with style-neutral high-quality components and materials compatible with the architecture and historic character of the building and district.

2.28 Where new units are proposed on an existing lot shared with a historic structure, the new building should, if possible, be detached from the historic structure and distinguish itself as new construction through materials, architectural details, and form.

HISTORIC BUILDINGS - RENOVATION AND ADDITION



3. ARCHITECTURAL DETAILS, MATERIALS, COLOR, AND FINISHES

OBJECTIVE

Use materials that are warm, inviting, and compatible with surrounding existing buildings and the neighborhood context. Develop building facades of high-quality, durable materials and with colors, finishes, and textures appropriate to building contexts.

GUIDELINES

- 3.1 While it is not required that materials match those of adjacent buildings, select their general color and scale in response to the neighborhood character.
- 3.2 Use high-quality and durable construction materials with proven records of long life-cycle and low environmental impacts.

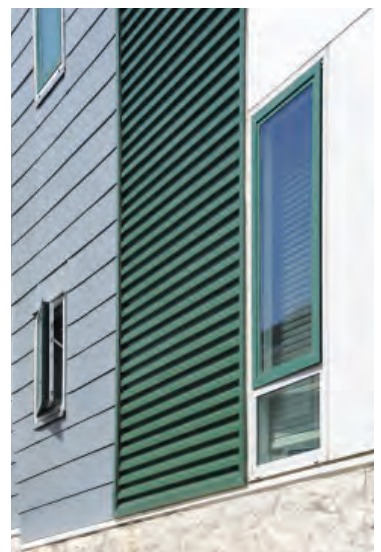
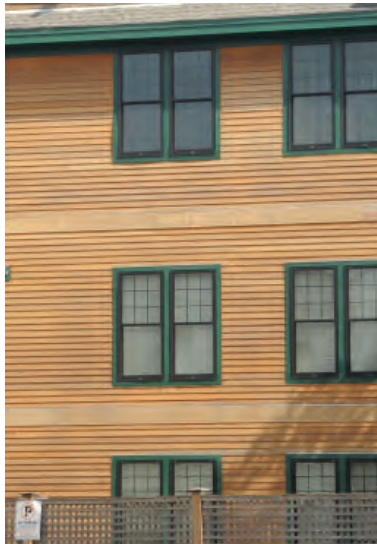
MATERIALS, COLORS, AND DETAILS - RELATING TO NEIGHBORHOOD BUILDINGS



- 3.3** Natural and durable materials such as brick, concrete masonry, and stone are preferred. Other optional materials include pre-manufactured panels of cementitious, concrete, or composite materials.
- 3.4** Use materials with colors appropriate to the immediate context and that are commonly used in the area. Avoid the use of garish colors that are not relevant to the architectural vocabulary found in the neighborhood context.

- 3.5** Avoid reflective facade materials.
- 3.6** Glass should be transparent, untinted, and have low reflectivity.
- 3.7** For residential units, strive for divided light or multiple pane windows. Avoid plate glass and single light windows.
- 3.8** Consider vegetated facade systems.

MATERIALS, COLORS, AND DETAILS - RELATING TO NEIGHBORHOOD BUILDINGS



4. BUILDING INTERIORS

OBJECTIVE

Affordable housing, like all housing, should serve the needs of its residents while contributing to the residential character and sense of neighborhood within the area at large.

GUIDELINES

- 4.1 Provide a mix of unit types and sizes that will support and contribute to the diversity of housing in the neighborhood. The inclusion of a significant number of units that are suitable for families with children is preferred except in special cases where housing will serve populations with different housing needs, such as housing for seniors.
- 4.2 Design interior living spaces to be attractive and comfortable. Include adequate interior living space, common storage, and access to natural light and air. Interior living spaces should be designed to be comfortable. Size bedrooms to accommodate standard bedroom furniture and include access to natural light. Provide ample counter space and storage in kitchens. Provide access to laundry facilities in residential units or elsewhere in the development.
- 4.3 Utilize interior finishes and fixtures that are high quality, durable, sustainable, and energy-efficient.
- 4.4 In larger projects, provide interior common spaces for shared amenities, services and facilities such as storage, recreation and gathering space, or in larger buildings areas that can serve residents in the event of extreme weather or power outages. Consider providing amenities that serve the broader community.
- 4.5 Consider providing common spaces at ground level, visually connected to outdoor space, whether on building frontages or addressing the interior of the block.
- 4.6 Use operable windows for residential units and common spaces to provide passive ventilation and improve indoor air quality.

BUILDING INTERIORS - COMFORTABLE AND PLEASANT SPACES



COMMON SPACES - CONNECTED TO THE OUTDOORS



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SUSTAINABLE DESIGN

Follow the City's overall sustainable development practices in affordable housing developments. Maximize energy efficiency and performance to reduce greenhouse gas emissions and should be resilient to the anticipated effects of climate change.

These guidelines are meant to supplement the City's zoning requirements and other applicable policies, including the Net Zero Action Plan and the Climate Change Preparedness and Resilience Plan.

SUSTAINABLE DESIGN

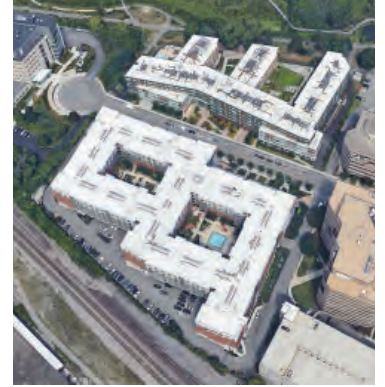
OBJECTIVE

Achieve resilience measures to the maximum extent possible, including energy efficiency and measures to promote the health and wellness of residents.

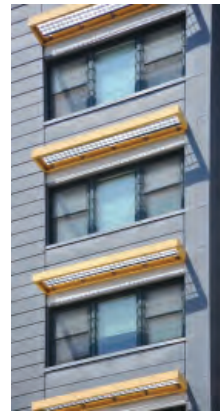
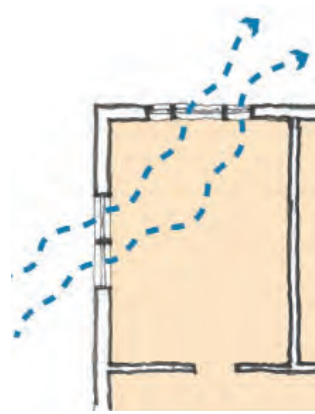
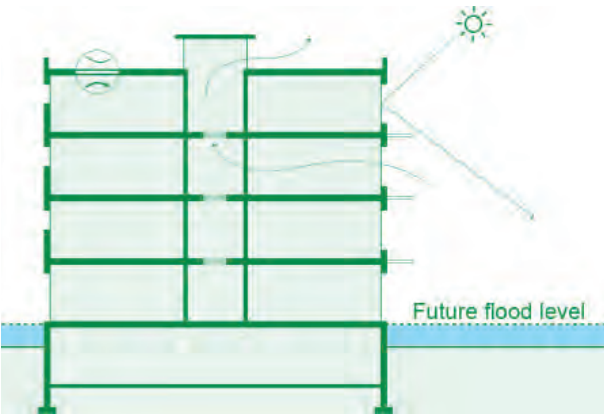
GUIDELINES

- 1.1** Use the City's most up-to-date projections for anticipated future flood elevations, including the City's Floodviewer information and dashboard, Seek guidance from the City of Cambridge Department of Public Works (DPW) regarding peak stormwater runoff and on measures to build and protect to the 2070 10% flood level and recover from the 2070 1% flood level.
- 1.2** Avoid locating sensitive uses such as critical building functions, emergency equipment, or residential bedrooms in areas that are at risk of future flooding.
- 1.3** If seeking a Sustainable Building certification, strive for the highest possible credential.
- 1.4** In site design, orientation, and facade arrangement, minimize the demand for heating and cooling by considering the effects of solar gain on different sides of the building. Design interior spaces for passive heating, cooling, and ventilation. This approach is intended to conserve energy while also improving resilience in the event of power outages or other mechanical failures.
- 1.5** Incorporate passive cooling and ventilation with operable windows, including operable upper sashes or transoms.
- 1.6** Incorporate sun shading devices or shutters with positive ventilation, solar screens, canopies, porches, or brise-soleils to shade strongly sunlit facades.
- 1.7** On roofs, exterior walls, and paved surfaces, use materials with high solar reflectivity to minimize heat absorption and localized heat island effect. As an alternative, employ vegetated coverings such as green roofs or green walls.
- 1.8** While trees are preferred, where they are not feasible consider the use of shading devices such as canopies, awnings, or pergolas to provide shade on exterior paved areas and/or to reduce solar heat gain on building facades.
- 1.9** On large projects, consider providing common spaces that are protected from flooding and extreme heat and are suitable as shelter during emergencies.
- 1.10** Employ renewable and low-carbon energy features where feasible, such as solar photovoltaic systems, solar heating systems, or geothermal heating and cooling systems.
- 1.10** Consider operational and embodied energy in material selection.
- 1.12** Select and design building systems and equipment within units to facilitate future conversion to all-renewable energy systems.
- 1.13** Use materials with no volatile organic compound emissions in all walls, floorings, ceilings, furniture, acoustic and thermal insulation, and facades exterior applied products.
- 1.14** Integrate cool roof or green roof systems on building roofs where possible to contribute to strategies for stormwater management and green infrastructure.
- 1.15** Where possible, use and integrate recycled content materials without compromising durability and material quality.

ROOFTOPS AS OPPORTUNITIES TO ADDRESS STORMWATER AND ENERGY



PASSIVE SYSTEMS



GLOSSARY

Affordable housing: Affordable housing is a reference to dwelling units that are affordable to households earning an income that does not exceed the amounts set forth in the Zoning Ordinance.

Affordable housing overlay: A modified zoning map and zoning requirements intended to regulate the development of 100% affordable housing referenced in Zoning Ordinance.

Architectural details: Architectural elements or components of a building cladding, fenestration, or building enclosure that express building style and character.

Architecturally significant: A structure or building that is valued by the community in which the structure or building is located due to physical and symbolic qualities including design, style, character, construction method, architectural details, its architect, or its time period. Architecturally significant buildings or structures may or may not be designated in a historic district.

Bay expression: The typical module and spacing of structural elements or components that are repetitive on the building facade horizontally and vertically. For example, the vertical planar surface of the facade between two columns or pilasters with repetitive components such as storefront windows or opaque wall expressed on the building facade is a typical bay expression.

Bay window: Projection of a window or a window wall beyond the typical plane of the building facade.

Blank wall: A wall with opaque cladding materials enclosing an interior space with no wall openings or glazing materials.

Canopy: A **horizontal** element that is structurally supported and providing a roof-like protective surface.

Circulation: The layout of permeable or impermeable surfaces around the site and building including street space, sidewalks for building entrance, exits, access to parking, driveways, and aisles.

Context: A place or locale such as a neighborhood or a community setting with physical qualities and character-defining features manifested in its built form and natural environment including its buildings, landmarks, parks, street space, and other natural features such as rivers and scenic settings; that is perceived to represent or characterize that place or a locale as distinguished or unique. A building that is contextual or context sensitive is a building that fits well within and respectful of its context.

Cool Roof: A cool roof is a roofing system that delivers higher solar reflectance (the ability to reflect the visible, infrared and ultraviolet wavelengths of the sun, reducing heat transfer to the building) and higher thermal emittance (the ability to radiate absorbed, or non-reflected solar energy) than standard designed roofing products.

Corner lot: A lot with two frontages on two intersecting streets.

Cladding: The exterior material layer of a building envelope which forms a veneer such as brick, stone, metal, glass, concrete, wood, terracotta, or other composite systems made of such materials.

Fenestration: The portion of the building envelope consisting of openings within the opaque wall for windows and doors dedicated for vision glass. For the purpose of the guidelines, spandrel glass that is opaque and does not allow light is not considered part of fenestration proportions or calculation.

Green Roof: A green roof is a roof of a building that is partially or completely covered with vegetation and a growing medium, planted over a waterproofing membrane. It may also include additional layers such as a root barrier and drainage and irrigation systems.

Green Wall: A green wall is a wall partially or completely covered with greenery that includes a growing medium, such as soil, water or a substrate.

Guidelines: A set of urban design guiding principles, recommendations, best practices or strategies intended to inform the design phase.

Opaque wall: A wall that does not allow visible light to go through, including spandrel glass, spandrel metal panel, and reflective glass that does not allow for visibility from the outside.

Massing: The perceived three-dimensional aspect of the physical qualities of building including its bulk, height, and scale.

Mechanical equipment screen wall: Is a ground level or rooftop element or structure without a roof used to block from public view building system elements such as mechanical, electrical, plumbing or elevator equipment and machinery.

Reflective glass: A glass used as part of window system or as a spandrel panel that does not allow for visibility from the outside.

Penthouse: An enclosed and unoccupied rooftop structure used to enclose rooftop equipment including mechanical, electrical, plumbing, or elevator equipment and machinery.

Vision glass: Glass that is transparent; it may be clear glass or tinted but provides transparency from the exterior and interior.

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